DEPARTMENT OF THE ARMY
U.S. ARMY MANEUVER SUPPORT CENTER AND FORT LEONARD WOOD
320 ENGINEER LOOP STE 316
FORT LEONARD WOOD, MO 65473-8929

REPLY TO
ATTENTION OF

ATZT-TPIO-T (10-5a) 7 August 2000

MEMORANDUM THRU

Commander, U.S. Army Maneuver Support Center, ATTN: ATZT-CG
Fort Leonard Wood, MO 65473-5000

Deputy Chief of Staff for Combat Developments, HQ TRADOC,
ATTN: ATCD-RP, Fort Monroe, VA 23651-5000

FOR Commander, U.S. Army Training and Doctrine Command, Fort Monroe, VA 23651-5000

SUBJECT: 2000 Annual Report for TRADOC Program Integration Office for Terrain Data (TPIO-TD)

1. **Description.** The TPIO-TD is the Army centralized manager for the coordination and synchronization of all Army digital terrain data requirements for digital force development and training, experimentation, combat developments, and modeling and simulation.

2. **Program status.** Digital Terrain Data.

a. **Stage of system development.** The Digital Terrain Data program has begun the implementation stage of system development. NIMA is migrating to a method of producing terrain data in a digital format, but the Army (ABCS and digitized weapons platforms) can not fully process and exploit this data immediately, based on varying stages of system development.

b. **System status and assessment.** TPIO-TD has just completed its third year of operation.

(1) Mission Responsibilities are GREEN.

(2) Personnel status is AMBER. We anticipate filling personnel shortages within the next month.

(3) Travel Funding is RED. Current level of funding is insufficient to meet travel obligations this FY. It is expected that this will be true for FY 01 unless additional funding is allocated. Meetings we are required to attend include a NIMA Geospatial Information Implementation Integrated Product Team meetings, TRADOC modeling and simulation boards and councils, technical working groups and exchange meetings, ICTs and IPTs. Video Tele-conferences (VTCs) are used to the greatest extent possible; however, most conferences and meetings require face-to-face interaction. The level of support for TDY budget must be increased to $100k. TPIO-TD has neither a PM nor any other agency to go to for additional travel funds. To accomplish the mission, we must use funds initially programmed for other activities at Fort Leonard Wood.

c. **The following paragraphs describe in detail activities accomplished during the reporting period.**

(1) **Digital Prototype Review and Requirements Definition.** TPIO-TD forwarded a memorandum, dated 12 January 99, to NIMA requesting examples of digital and hardcopy maps based on NIMA’s Foundation Data Concept. These prototypes were distributed to over 130 Army units, activities and agencies in August 99 for review. The objectives of this prototype review were twofold: to educate the field on the direction NIMA is taking with respect to geospatial information and to solicit input from the field as we define the Army’s requirements for digital terrain data. We believe we were successful on both accounts. We received comments from the field, and we consolidated and documented them in a memorandum signed by MG Flowers on 14 June 00. This document reflects an Army consensus on its terrain data requirements. This memorandum is the culmination of two years of effort to define digital terrain data requirements. TPIO-TD must continue to monitor NIMA implementation of these requirements to insure the Army has the ability to execute a digitization strategy and implement the Common Topographic Operating Picture.

(2) **DCX Requirements.** TPIO-TD is an active member of the Digital Force Coordination Cell Council of Colonels. In this capacity, we ensure that all digital geospatial data requirements are clearly articulated, will be available when required and serve as the TRADOC subject matter expert on terrain issues for the First Digital Division. The digital terrain data sets for both DCX I and II have been defined and provided to NIMA. At this time, we do not anticipate any issues with terrain data for either of the exercises.

(3) **JCF-AWE Requirements.** JCF-AWE will be conducted in Sep/Oct 00. The play box has been defined and NIMA either has or is currently producing the data sets for the exercise. At this time, we do not anticipate any issues with terrain data for this exercise.

(4) **Joint Mapping Tool Kit (JMTK). Although not chartered to do so, TPIO-TD is the only TRADOC agency involved in the requirements definition of the JMTK.** JMTK is the software package on the Army Battle Command System that displays the digital terrain data and forms the basis for the Common Operating Picture. TPIO-TD has participated in the Mapping, Charting, Geodesy, and Imagery Technical Working Group (TWG), and Requirements Working Group meetings to continue to define the Army’s requirements for the JMTK.

(5) **Dissemination. Although not specifically chartered to do so,** TPIO-TD has continued to refine an operational concept and implementation plan for management and dissemination of digital geospatial data. This encompasses the processes of requesting Mission Specific Data Sets, subsetting that data for subordinate elements, replicating the electronic media, and distributing the media to Force XXI Battle Command Brigade and Below (FBCB2) systems and digitized weapons platforms (Ground Combat and Support Systems [GCSS]). Close and constant coordination with all ABCS and GCSS combat and materiel developers has been required to ensure that the correct digital geospatial products are provided for system development, evaluation, and exercises. In addition, TPIO-TD has defined and supports the materiel developer's execution of a Digital Map Storage Device to service all ABCS systems. This effort includes active participation in the Program Executive Office

Command, Control and Communications Systems Synchronization Events and Battle Command Battle Laboratory – Leavenworth Limited Objective Experimentation to evaluate the dissemination, storage, and management of digital geospatial data. TPIO-TD is educating combat and materiel developers on the tools required to process and exploit legacy and emerging types (formats) of digital geospatial data.

(6) **Doctrine**. **Although not chartered to do so,** TPIO-TD continues to provide doctrinal guidance to USAES DOT and DCD and CAC on who, what, how and when digital geospatial data will be integrated into the digital Army XXI and Army After Next.

(7) **Modeling and Simulation.** Modeling and simulation terrain data synchronization and coordination efforts were high on the priority list of the TPIO-TD. TPIO-TD has participated in TRADOC Modeling and Simulation Advisory Boards and Councils, Synthetic Natural Environment Periodic Reviews, Army Standards Coordinating Committee meetings, and an AMSO sponsored IPT charter to bring together terrain data requirements for both C4I and M&S.

(8) **TRADOC (Tier I chartered) Imagery and Geospatial Information Integrated Concept Team (IGI ICT).** TPIO-TD in conjunction with the US Army Intelligence Center has continued to lead an ICT to synchronize the efforts of the Intelligence and Engineer schools Imagery with respect to imagery and geospatial information and services within the Army. This effort focuses on development of an Imagery and Geospatial Information Supporting Concept, an architecture to process, exploit and disseminate imagery and geospatial information, an Army training strategy for imagery and geospatial information (to include map reading), and a consolidated requirements memorandum.

d. **Upcoming Action**.

(1) **Support to NIMA’s GII Implementation IPT.** TPIO-TD co-sponsored a Value Engineering workshop at Fort Leavenworth in July 1999. Thirty of the Army and NIMA’s leaders in geospatial information attended to resolve several issues that had not been addressed in other forums. At the end of the

workshop, the Army identified several challenges (all joint in nature) that NIMA must address and resolve before the Foundation Data Concept can be fully implemented. This workshop addressed NIMA certification of Co-producers of NIMA data, a concept for an integrated terrain data model, environmental information management, and C4I and M&S environmental representations and interoperability. Based on a TPIO-TD letter through TRADOC Headquarters and DCSINT to the Joint Staff, NIMA is standing up an Implementation IPT on 7 August to address the above issues. This IPT is scheduled to last nine months, and should resolve most of the issues that inhibit implementation of the Foundation Data Concept. TPIO-TD will lead the Army effort in this IPT by providing direction and guidance to the Army representatives to ensure the direction NIMA takes is compatible with the Army's efforts in digital terrain data.

(2) **Imagery and Geospatial ICT.** The Imagery and Geospatial Information ICT formed five subordinate work groups through a cooperative agreement between USAES and USAIC. This effort over the past year has proven to be extremely beneficial in bringing together the terrain and imagery analyst on a digital battlefield of Army XXI. TPIO-TD is actively involved in the ICT and all IPT's. Developing a training strategy for is the major effort needed over the next year.

(3) **C4I and M&S Connection.** Direct ingestion of NIMA terrain databases by the modeling and simulation community is still not a reality but based on recent meetings, there seems to be some commonality in data framework models from NIMA and STRICOM. Unlike command and control systems that may use digital map products for visualization and navigation, models and simulations use NIMA (or contractor) data sets with enhanced attribution to provide visualization and reasoning on the terrain. The integration of the modeling and simulation capability into the command and control systems for mission planning and rehearsals will remain a high priority for the TPIO-TD. The AMSO and TPIO-TD continue to work together to define a framework or model that will satisfy both the C4I and the M&S community. Only through this effort will the reuse of NIMA data for realistic mission planning and rehearsal become a reality.

(4) **Transition to Commercial Joint Mapping Tool Kit (C/JMTK).** Based on Congressional direction, NIMA is soliciting proposals for COTS packages to replace the JMTK functionality. TPIO-TD has been involved in the development and review of the requirements for this COTS conversion. TPIO-TD will continue to represent TRADOC in the Mapping, Charting, Geodesy, and Imagery Technical Working Group (TWG) and Requirements Working Group meetings for the C/JMTK.

e. **Funding.** This program is partially funded. It is imperative that representatives from TPIO-TD attend meetings, established ICT's (and IPT's) and working groups throughout the country. It is difficult to coordinate and synchronize terrain data requirements at working groups and planning conferences, etc, if we are not there. Unfortunately, VTCs are not always available to substitute for travel. In the past, we have worked with others to get representation at various meetings or at least get trip reports. This will be even more difficult this year with the execution of both phases of the DCX, the emergence of the Transition Force O&O and JCF-AWE, as well as our support to NIMA's IPT, and our efforts in the JMTK/ABCS and Geospatial Data Dissemination arenas. Without additional funding, TRADOC will not have an authoritative voice at forums that are specifically focused (C4I and M&S) on terrain data requirements and the systems required to process, exploit and move the data.

f. **Recommendation:** Retain the TPIO-TD. Rationale: NIMA geospatial information support to the Army is undergoing a revolutionary change. TPIO-TD was able to define the Army broad requirements, but without the structure, policies and procedures in place, NIMA's efforts will be uncoordinated and difficult for the warfighter to implement. As FDD approaches, the need to coordinate and synchronize efforts with a multitude of agencies and organizations (NIMA, TEC, DISA, TPIOs/TSMs, PMs, PEOs, DCSINT, STRICOM, TRADOC, DFCC, Battle Labs, SIGCEN, CECOM, AMSO, ADO, Joint Venture, TRADOC Schools, DCSOPS, SARD, CTCs and others) will continue. As the only TRADOC representative to the geospatial information community, there is still much to be done to realize the benefits of NIMA's new direction.

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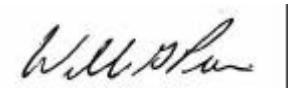
3. **Personnel status.** See Enclosure 2.

4. **General areas needing HQ TRADOC assistance.** Additional funding.

FOR THE COMMANDER:



2 Encls
1. System Description
2. Personnel Status

WILLIAM G. PIERCE
COL, EN
Director, TRADOC Program Integration Office-Terrain Data

CF:
Commander, Combined Arms Center, 415 Sherman Avenue, Fort Leavenworth, Kansas 66027

TPIO - TD

SYSTEM DESCRIPTION
as of 24 JUL 00

1. TRADOC Program Integration Office for Terrain Data (TPIO-TD).

a. Mission. Coordinate and synchronize all Army digital terrain data requirements for digital force development and training, experimentation, combat developments; training; and live, virtual and constructive modeling and simulation. The mission includes the integration, interpretability and commonality aspects of terrain data and products for the necessary development, testing, producing, and fielding of Army systems that require digital terrain data.

b. Characteristics and operational capabilities. Terrain data will be managed as a system. This is a departure from the normal definition of a system. The term terrain data shall encompass all forms of terrain data - digital and analog - as well as all aspects of terrain data such as resolution, accuracy, and form. For TRADOC warfighting experiments, exercises, and tests, it shall also include the area of coverage.

c. Systems replaced/augmented. None

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TPIO - TD

PERSONNEL STATUS
as of 21 July 2000

| DUTY POSITION | NAME | RANK/ASI | DATE ASSIGNED (DD MMM YY) | EXPECTED DEPARTURE (MMM YY) |
|---|---|---|---|---|
| Director | William Pierce | COL/21 | 10 JUL 98 | JUL 02 |
| Deputy | Ralph Erwin | GS-13/301 | 22 JUN 00 | |
| Syst Anal | **Vacant** | GS-12/301 | | |
| Ops Off | **Vacant** | CPT/21 | | |
| Secretary | Janet Clark | GS-6/318 | 10 OCT 99 | |

**SUPPLEMENTAL STAFFING**

| DUTY POSITION | NAME | RANK MOS/ASI | DATE ASSIGNED (DD MMM YY) | EXPECTED DEPARTURE (MMM YY) |
|---|---|---|---|---|
| SME | Kenneth Tatro | CW4/215D | 01 JUL 97 | JUL 01 |